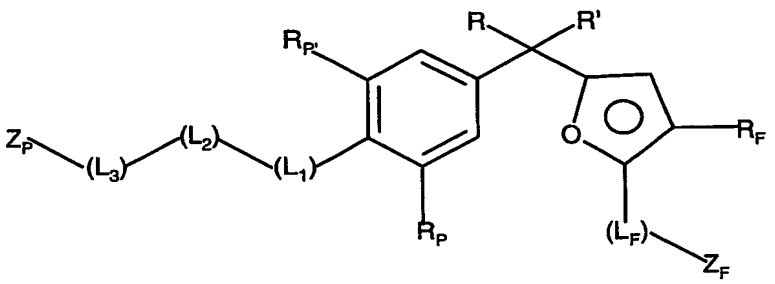
WE CLAIM:

1. A compound represented by formula I or a pharmaceutically acceptable salt derivative thereof:



(I)

wherein;

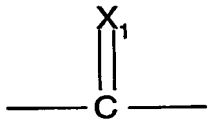
R and R' are independently C_1-C_4 alkyl, C_1-C_4 fluoroalkyl, or together R and R' form a substituted or unsubstituted, saturated or unsaturated carbocyclic ring having from 3 to 8 carbon atoms;

R_P, $R_{P'}$, and R_F are independently selected from the group consisting of hydrogen, halo, C_1-C_4 alkyl, C_2-C_4 alkenyl, C_2-C_4 alkynyl,C_1-C_4 fluoroalkyl, -O-C_1-C_4 alkyl, -S-C_1-C_4 alkyl, -O-C_1-C_4 fluoroalkyl, -CN, -NO_2, acetyl, -S-C_1-C_4 fluoroalkyl, C_2-C_4 alkenyl, C_3-C_4 cycloalkyl, and C_3-C_4 cycloalkenyl;

(L_1), (L_2), (L_3), and (L_F) are divalent linking groups independently selected from the group consisting of

a bond,

oxygen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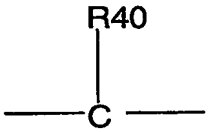
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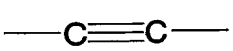
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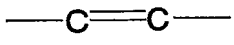
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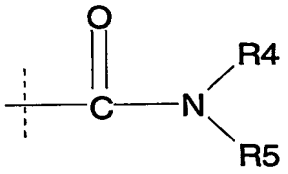
where each R40 is independently hydrogen, C_1-C_5 alkyl or C_1-C_5 fluoroalkyl;

where X1 is O, CH2 or [H, OH];

Z_F is



where R4 and R5 are indepdently hydrogen, C_1-C_4 alkyl, -O-C_1-C_4 alkyl, C_2-C_4 alkenyl, C_2-C_4 alkynyl, C_1-C_4 haloalkyl, -NH(C_1-C_4 alkyl), or cyclopropyl, with the proviso that only one of R4 or R5 may be hydrogen;

Z_P is

methyl,

ethyl,

n-propyl,

1-methylethyl,

1-methylpropyl,

2-methylpropyl,

1,1-dimethylethyl,
1,1-dimethylpropyl,
1,2-dimethylpropyl,
2,2-dimethylpropyl,
1-hydroxy-2,2-dimethylpropyl,
1-hydroxy-1,2,2-trimethylpropyl,
2-hydroxy-2-methylbutoxy
2-hydroxy-2-ethylbutoxy
2-hydroxy-2-ethyl-3-methylbutoxy
2-hydroxy-2-methyl-3-methylbutoxy
2-hydroxy-1,3,3-trimethylbutoxy
2-hydroxy-1-ethyl-3,3-dimethylbutoxy
2-hydroxy-1,2-diethylbutoxy
2-hydroxy-2-ethyl-1-methylbutoxy
3-methyl-3-hydroxypentyl,
3-methyl-3-hydroxypentenyl,
3-methyl-3-hydroxypentynyl,
3-ethyl-3-hydroxypentyl,
3-ethyl-3-hydroxypentenyl,
3-ethyl-3-hydroxypentynyl,
3-ethyl-3-hydroxy-4-methylpentyl,
3-ethyl-3-hydroxy-4-methylpentenyl,
3-ethyl-3-hydroxy-4-methylpentynyl,
3-propyl-3-hydroxypentyl,
3-propyl-3-hydroxypentenyl,
3-propyl-3-hydroxypentynyl,
1-hydroxy-2-methyl-1-(methylethyl)propyl
1-hydroxycyclopentenyl,
1-hydroxycyclohexenyl,
1-hydroxycycloheptenyl,
1-hydroxycyclooctenyl,
1-hydroxycyclopropyl,

1-hydroxycyclobutyl,
1-hydroxycyclopentyl,
1-hydroxycyclohexyl,
1-hydroxycycloheptyl, or
1-hydroxycyclooctyl.

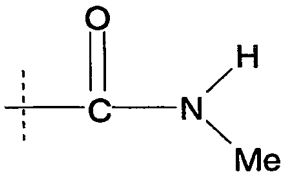
2. The compound of claim 1 wherein

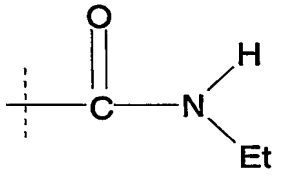
Z_P is 1,1-dimethylethyl, 1,2-dimethylpropyl, 2,2-dimethylpropyl, 1-hydroxy-2,2-dimethylpropyl, or 1-hydroxy-1,2,2-trimethylpropyl, provided that (L_1), (L_2), (L_3) are all bonds;

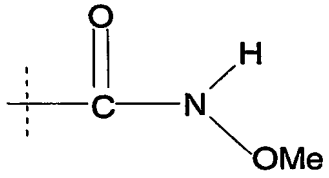
Z_F is selected from:

-C(O)NHMe,
-C(O)NHEt,
-C(O)NH(iPr),
-C(O)NH(tBu),
-C(O)NH(CF_3),
-C(O)N($Me)_2$,
-C(O)NMeEt,
-C(O)NMe(iPr),
-C(O)NMe(tBu),
-C(O)NMe(CF_3),
-C(O)N(Me)F,
-C(O)N(Et)F
-C(O)N(iPr)F,
-C(O)N(tBu)F,
-C(O)N($Et)_2$, or
-C(O)NEt(iPr); and

Z_F is


O
H
C
N
Me
,


O
H
C
N
Et
,


O
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C
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OMe
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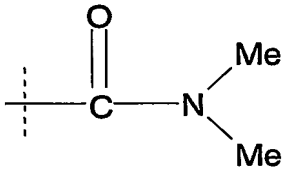
O
Me
C
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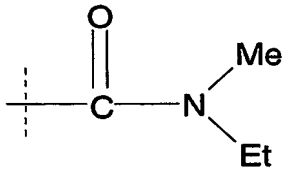
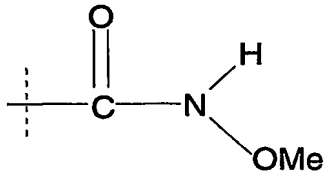
,


O
Me
C
N
Et
,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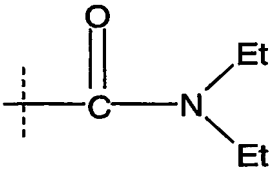
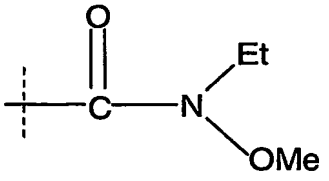

O
Et
C
N
Et
,


O
Et
C
N
OMe
or

;

or a pharmaceutically acceptable salt or prodrug thereof.

3. The compound of claim 2 wherein

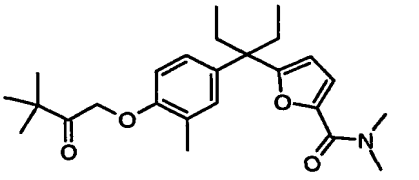
Z_F is selected from:

-C(O)NHMe,
-C(O)NHEt,
-C(O)NH(iPr),
-C(O)NH(tBu),
-C(O)N(Me)$_2$,
-C(O)NMeEt,
-C(O)NMe(iPr),
-C(O)NMe(tBu),
-C(O)N(Et)$_2$, or
-C(O)NEt(iPr);

or a pharmaceutically acceptable salt or prodrug thereof.

4. A compound or a pharmaceutically acceptable salt or ester prodrug derivative thereof represented by formulae A to J as follows:

A)



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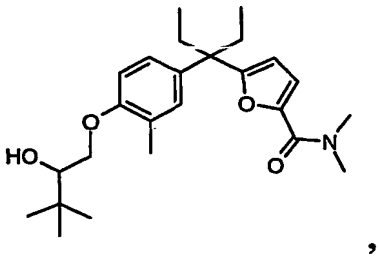
B)



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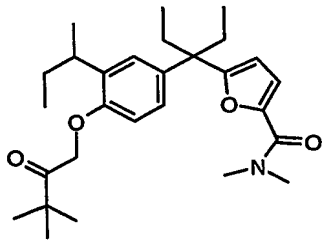
C)



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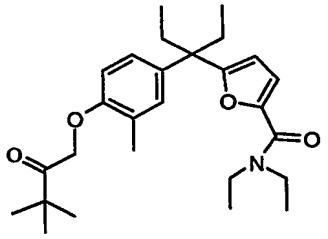
E)



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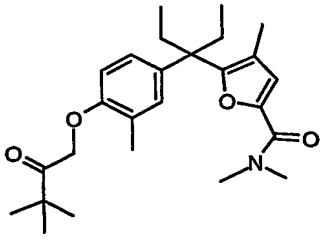
F)



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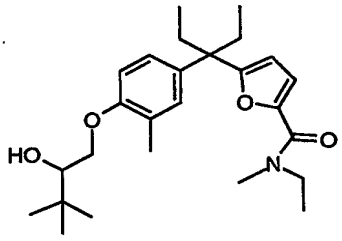
G)



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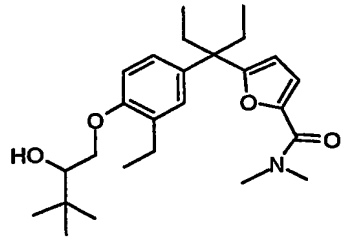
H)



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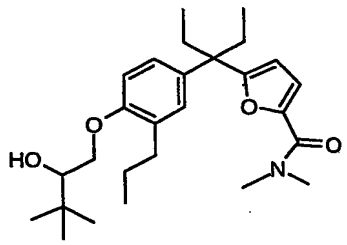
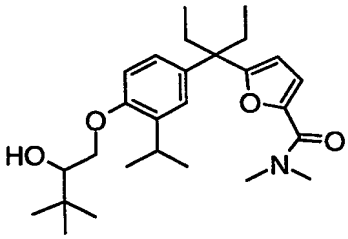
I)



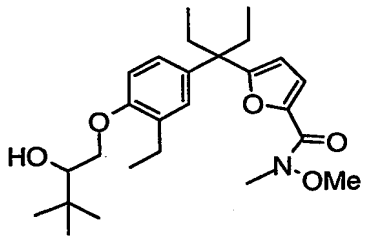
, and

J)



, and

K)



5. The salt derivative of the compound according to any of claims 1 to 4 wherein the salt is sodium or potassium.

6. A pharmaceutical formulation comprising the compound of any one of claims 1 to 4 together with a pharmaceutically acceptable carrier or diluent.

7. A formulation for treating osteoporosis comprising:

Ingredient (A1): a vitamin D receptor modulator of claim 1 to 4;

Ingredient (B1):

one or more co-agents selected from the group consisting of:

a. estrogens,

b. androgens,

c. calcium supplements,
d. vitamin D metabolites,
e. thiazide diuretics,
f. calcitonin,
g. bisphosphonates,
h. SERMS, and
i. fluorides; and

Ingredient (C1): optionally, a carrier or diluent.

8. The formulation of claim 7 wherein the weight ratio of (A1) to (B1) is from 10:1 to 1:1000.

9. A formulation for treating psoriasis comprising:

Ingredient (A2): a vitamin D receptor modulator according to any one of claims 1 to 4;

Ingredient (B2):

one or more co-agents that are conventional for treatment psoriasis selected from the group consisting of:

a. topical glucocorticoids ,
b. salicylic acid,
c. crude coal tar; and

Ingredient (C2): optionally, a carrier or diluent.

10. The formulation of claim 9 wherein the weight ratio of (A2) to (B2) is from 1:10 to 1:100000.

11. A method of treating a mammal to prevent or alleviate the pathological effects of Acne, Actinic keratosis, Alopecia , Alzheimer's disease, Bone maintenance in zero gravity, Bone fracture healing, Breast cancer, Chemoprovention of Cancer, Crohn's disease, Colon cancer, Type I diabetes, Host-graft rejection, Hypercalcemia , Type II diabetes, Leukemia, Multiple sclerosis, Myelodysplastic syndrome, Insufficient sebum secretion, Osteomalacia, Osteoporosis, Insufficient dermal firmness, Insufficient dermal

hydration, Psoriatic arthritis, Prostate cancer, Psoriasis, Renal osteodystrophy, Rheumatoid arthritis, Scleroderma, Skin cancer, Systemic lupus erythematosus, Skin cell protection from Mustard vesicants, Ulcerative colitis, Vitiligo, or Wrinkles; wherein the method comprises administering a pharmaceutically effective amount of at least one compound of claim 1 or 2 or 3.

12. The method of claim 11 for the treatment of psoriasis.

13. The method of claim 11 for the treatment of osteoporosis.

14. A method of claim 11 for treating a mammal to prevent or alleviate skin cell damage from Mustard vesicants.

15. A method of treating a mammal to prevent or alleviate the pathological effects of Benign prostatic hyperplasia or bladder cancer wherein the method comprises administering a pharmaceutically effective amount of at least one compound according to any one of claims 1 to 4.

16. A method of treating or preventing disease states mediated by the Vitamin D receptor, wherein a mammal in need thereof is administered a pharmaceutically effective amount of a compound of Claim 1 to 4.

17. A compound as claimed in any one of Claims 1 to 4 for use in treating a mammal to prevent or alleviate the pathological effects of Acne, Actinic keratosis, Alopecia , Alzheimer's disease, Bone maintenance in zero gravity, Bone fracture healing, Breast cancer, Chemoprovention of Cancer, Crohn's disease, Colon cancer, Type I diabetes, Host-graft rejection, Hypercalcemia , Type II diabetes, Leukemia, Multiple sclerosis, Myelodysplastic syndrome, Insufficient sebum secretion, Osteomalacia, Osteoporosis, Insufficient dermal firmness, Insufficient dermal hydration, Psoriatic arthritis, Prostate cancer, Psoriasis, Renal osteodystrophy, Rheumatoid arthritis, Scleroderma, Skin cancer, Systemic lupus erythematosus, Skin cell damage from Mustard vesicants, Ulcerative colitis, Vitiligo, or Wrinkles.

18. A compound as claimed in any one of Claims 1 to 4 for use in treating a mammal to prevent or alleviate the pathological effects of benign prostatic hyperplasia or bladder cancer.

19. A compound as claimed in any one of Claims 1 to 4 for use in treating or preventing disease states mediated by the Vitamin D receptor.

20. A compound as claimed in Claim 1 substantially as hereinbefore described with reference to any of the Examples.

21. A process for preparing a compound as claimed in claim 1 substantially as hereinbefore described with reference to any of the Examples.

22. The use of a compound as claimed in claim 1 substantially as herein described with reference to any of the Assays and Tables for mediating the Vitamin D receptor.